

99274Cseq
SEQUENCE LISTING

<110> Boutand, Ariel
<120> Recombinant Laminin 5
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<140> 09/560,385
<141> 2000-04-28

<160> 36
<170> PatentIn Ver. 2.0

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Arg Cys Gln Glu Gly Tyr Tyr Gly Asn Ala Val His Gly Ser Cys Arg
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gat ggt aga aat agc aat aca ctc ctt aat ttg gat cct gaa aat gtt Asp Gly Arg Asn Ser Asn Thr Leu Leu Asn Leu Asp Pro Glu Asn Val 885 890 895			2688
gta ttt tat gtt gga ggt tac cca cct gat ttt aaa ctt ccc agt cga Val Phe Tyr Val Gly Gly Tyr Pro Pro Asp Phe Lys Leu Pro Ser Arg 900 905 910			2736
cta agt ttc cct cca tac aaa ggt t ^t gt att gaa tta gat gac ctc aat Leu Ser Phe Pro Pro Tyr Lys Gly Cys Ile Glu Leu Asp Asp Leu Asn 915 920 925			2784
gaa aat gtt ctg agc ttg tac aac ttc aaa aaa aca ttc aat ctc aac Glu Asn Val Leu Ser Leu Tyr Asn Phe Lys Lys Thr Phe Asn Leu Asn 930 935 940			2832
aca act gaa gt ^g gag cct t ^t gt aga agg agg aag gaa gag tca gac aaa Thr Thr Glu Val Glu Pro Cys Arg Arg Lys Glu Glu Ser Asp Lys 945 950 955 960			2880
aat tat ttt gaa ggt acg ggc tat gct cga gtt cca actcaa cca cat Asn Tyr Phe Glu Gly Thr Gly Tyr Ala Arg Val Pro Thr Gln Pro His 965 970 975			2928
gct ccc atc cca acc ttt gga cag aca att cag acc acc gt ^g gat aga Ala Pro Ile Pro Thr Phe Gly Gln Thr Ile Gln Thr Thr Val Asp Arg 980 985 990			2976
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cca aaa gag aga gga gtt gga gac gcc ata aac aac ggc aga gac cat Pro Lys Glu Arg Gly Val Gly Asp Ala Ile Asn Asn Gly Arg Asp His 1025 1030 1035 1040			3120
tcg att cag atc aaa att gga aaa ctc caa aag cgt atg tgg ata aat			3168

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Ser	Ile	Gln	Ile	Lys	Ile	Gly	Lys	Leu	Gln	Lys	Arg	Met	Trp	Ile	Asn
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aca	tat	tat	ctg	gga	gga	att	cca	att	gca	atc	agg	gaa	aga	ttt	aac
Thr	Tyr	Tyr	Leu	Gly	Gly	Ile	Pro	Ile	Ala	Ile	Arg	Glu	Arg	Phe	Asn
1075							1080				1085				
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Ile	Ser	Thr	Pro	Ala	Phe	Arg	Gly	Cys	Met	Lys	Asn	Leu	Lys	Lys	Thr
1090					1095						1100				
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Ser	Gly	Val	Val	Arg	Leu	Asn	Asp	Thr	Val	Gly	Val	Thr	Lys	Lys	Cys
1105					1110				1115						1120
tcg	gaa	gac	tgg	aag	ctt	gtg	cga	tct	gcc	tca	ttc	tcc	aga	gga	gga
Ser	Glu	Asp	Trp	Lys	Leu	Val	Arg	Ser	Ala	Ser	Phe	Ser	Arg	Gly	Gly
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caa	ttg	agt	ttc	act	gat	ttg	ggc	tta	cca	cct	act	gac	cac	ctc	cag
Gln	Leu	Ser	Phe	Thr	Asp	Leu	Gly	Leu	Pro	Pro	Thr	Asp	His	Leu	Gln
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Ala	Ser	Phe	Gly	Phe	Gln	Thr	Phe	Gln	Pro	Ser	Gly	Ile	Leu	Leu	Asp
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His	Gln	Thr	Trp	Thr	Arg	Asn	Leu	Gln	Val	Thr	Leu	Glu	Asp	Gly	Tyr
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Ile	Glu	Leu	Ser	Thr	Ser	Asp	Ser	Gly	Gly	Pro	Ile	Phe	Lys	Ser	Pro
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cag	acg	tat	atg	gat	ggt	tta	ctg	cat	tat	gta	tct	gta	ata	agc	gac
Gln	Thr	Tyr	Met	Asp	Gly	Leu	Leu	His	Tyr	Val	Ser	Val	Ile	Ser	Asp
1205							1210						1215		
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Lys	Arg	Leu	Lys	His	Ile	Ser	Ser	Ser	Arg	Gln	Ser	Leu	Arg	Leu	Gly
1235							1240						1245		
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Gly	Ser	Asn	Phe	Glu	Gly	Cys	Ile	Ser	Asn	Val	Phe	Val	Gln	Arg	Leu
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Ser	Leu	Ser	Pro	Glu	Val	Leu	Asp	Leu	Thr	Ser	Asn	Ser	Leu	Lys	Arg
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gga gcc ctc cag ttt ggg gac att ccc acc agc cac ttg cta ttc aag Gly Ala Leu Gln Phe Gly Asp Ile Pro Thr Ser His Leu Leu Phe Lys 1345 1350 1355 1360				4080
ctt cct cag gag ctg ctg aaa ccc agg tca cag ttt gct gtg gac atg Leu Pro Gln Glu Leu Leu Lys Pro Arg Ser Gln Phe Ala Val Asp Met 1365 1370 1375				4128
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gat ggg aaa tgg cac acg gtg gtg ttt ggc cat gat ggg gaa aag ggg Asp Gly Lys Trp His Thr Val Val Phe Gly His Asp Gly Glu Lys Gly 1425 1430 1435 1440				4320
cgc ttg gtt gtg gat gga ctg agg gcc cggt gag gga agt ttg cct gga Arg Leu Val Val Asp Gly Leu Arg Ala Arg Glu Gly Ser Leu Pro Gly 1445 1450 1455				4368
aac tcc acc atc agc atc aga gcg cca gtt tac ctg gga tca cct cca Asn Ser Thr Ile Ser Ile Arg Ala Pro Val Tyr Leu Gly Ser Pro Pro 1460 1465 1470				4416
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ggg cca gaa ttt aag ctt gtt ttc agc atc cgc cca aga agt ctc act Gly Pro Glu Phe Lys Leu Val Phe Ser Ile Arg Pro Arg Ser Leu Thr 1540 1545 1550				4656

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Ala Ser Tyr Val Glu Phe Arg Pro Ser Gln Gly Cys Ser Pro Gly Tyr 20 25 30
Tyr Arg Asp His Lys Gly Leu Tyr Thr Gly Arg Cys Val Pro Cys Asn 35 40 45
Cys Asn Gly His Ser Asn Gln Cys Gln Asp Gly Ser Gly Ile Cys Val 50 55 60
Asn Cys Gln His Asn Thr Ala Gly Glu His Cys Glu Arg Cys Gln Glu 65 70 75 80

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Gly	Tyr	Tyr	Gly	Asn	Ala	Val	His	Gly	Ser	Cys	Arg	Ala	Cys	Pro	Cys
					85			90				95			
Pro	His	Thr	Asn	Ser	Phe	Ala	Thr	Gly	Cys	Val	Val	Asn	Gly	Gly	Asp
					100			105				110			
Val	Arg	Cys	Ser	Cys	Lys	Ala	Gly	Tyr	Thr	Gly	Thr	Gln	Cys	Glu	Arg
					115			120				125			
Cys	Ala	Pro	Gly	Tyr	Phe	Gly	Asn	Pro	Gln	Lys	Phe	Gly	Gly	Ser	Cys
					130			135			140				
Gln	Pro	Cys	Ser	Cys	Asn	Ser	Asn	Gly	Gln	Leu	Gly	Ser	Cys	His	Pro
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Leu	Thr	Gly	Asp	Cys	Ile	Asn	Gln	Glu	Pro	Lys	Asp	Ser	Ser	Pro	Ala
					165			170			175				
Glu	Glu	Cys	Asp	Asp	Cys	Asp	Ser	Cys	Val	Met	Thr	Leu	Leu	Asn	Asp
					180			185			190				
Leu	Ala	Thr	Met	Gly	Glu	Gln	Leu	Arg	Leu	Val	Lys	Ser	Gln	Leu	Gln
					195			200			205				
Gly	Leu	Ser	Ala	Ser	Ala	Gly	Leu	Leu	Glu	Gln	Met	Arg	His	Met	Glu
					210			215			220				
Thr	Gln	Ala	Lys	Asp	Leu	Arg	Asn	Gln	Leu	Leu	Asn	Tyr	Arg	Ser	Ala
					225			230			235			240	
Ile	Ser	Asn	His	Gly	Ser	Lys	Ile	Glu	Gly	Leu	Glu	Arg	Glu	Leu	Thr
					245			250			255				
Asp	Leu	Asn	Gln	Glu	Phe	Glu	Thr	Leu	Gln	Glu	Lys	Ala	Gln	Val	Asn
					260			265			270				
Ser	Arg	Lys	Ala	Gln	Thr	Leu	Asn	Asn	Asn	Val	Asn	Arg	Ala	Thr	Gln
					275			280			285				
Ser	Ala	Lys	Glu	Leu	Asp	Val	Lys	Ile	Lys	Asn	Val	Ile	Arg	Asn	Val
					290			295			300				
His	Ile	Leu	Leu	Lys	Gln	Ile	Ser	Gly	Thr	Asp	Gly	Glu	Gly	Asn	Asn
					305			310			315			320	
Val	Pro	Ser	Gly	Asp	Phe	Ser	Arg	Glu	Trp	Ala	Glu	Ala	Gln	Arg	Met
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Met	Arg	Glu	Leu	Arg	Asn	Arg	Asn	Phe	Gly	Lys	His	Leu	Arg	Glu	Ala
					340			345			350				
Glu	Ala	Asp	Lys	Arg	Glu	Ser	Gln	Leu	Leu	Leu	Asn	Arg	Ile	Arg	Thr
					355			360			365				
Trp	Gln	Lys	Thr	His	Gln	Gly	Glu	Asn	Asn	Gly	Leu	Ala	Asn	Ser	Ile
					370			375			380				
Arg	Asp	Ser	Leu	Asn	Glu	Tyr	Glu	Ala	Lys	Leu	Ser	Asp	Leu	Arg	Ala
					385			390			395			400	
Arg	Leu	Gln	Glu	Ala	Ala	Ala	Gln	Ala	Lys	Gln	Ala	Asn	Gly	Leu	Asn
					405			410			415				

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Gln Glu Asn Glu Arg Ala Leu Gly Ala Ile Gln Arg Gln Val Lys Glu
 420 425 430

Ile Asn Ser Leu Gln Ser Asp Phe Thr Lys Tyr Leu Thr Thr Ala Asp
 435 440 445

Ser Ser Leu Leu Gln Thr Asn Ile Ala Leu Gln Leu Met Glu Lys Ser
 450 455 460

Gln Lys Glu Tyr Glu Lys Leu Ala Ala Ser Leu Asn Glu Ala Arg Gln
 465 470 475 480

Glu Leu Ser Asp Lys Val Arg Glu Leu Ser Arg Ser Ala Gly Lys Thr
 485 490 495

Ser Leu Val Glu Glu Ala Glu Lys His Ala Arg Ser Leu Gln Glu Leu
 500 505 510

Ala Lys Gln Leu Glu Glu Ile Lys Arg Asn Ala Ser Gly Asp Glu Leu
 515 520 525

Val Arg Cys Ala Val Asp Ala Ala Thr Ala Tyr Glu Asn Ile Leu Asn
 530 535 540

Ala Ile Lys Ala Ala Glu Asp Ala Ala Asn Arg Ala Ala Ser Ala Ser
 545 550 555 560

Glu Ser Ala Leu Gln Thr Val Ile Lys Glu Asp Leu Pro Arg Lys Ala
 565 570 575

Lys Thr Leu Ser Ser Asn Ser Asp Lys Leu Leu Asn Glu Ala Lys Met
 580 585 590

Thr Gln Lys Leu Lys Gln Glu Val Ser Pro Ala Leu Asn Asn Leu
 595 600 605

Gln Gln Thr Leu Asn Ile Val Thr Val Gln Lys Glu Val Ile Asp Thr
 610 615 620

Asn Leu Thr Thr Leu Arg Asp Gly Leu His Gly Ile Gln Arg Gly Asp
 625 630 635 640

Ile Asp Ala Met Ile Ser Ser Ala Lys Ser Met Val Arg Lys Ala Asn
 645 650 655

Asp Ile Thr Asp Glu Val Leu Asp Gly Leu Asn Pro Ile Gln Thr Asp
 660 665 670

Val Glu Arg Ile Lys Asp Thr Tyr Gly Arg Thr Gln Asn Glu Asp Phe
 675 680 685

Lys Lys Ala Leu Thr Asp Ala Asp Asn Ser Val Asn Lys Leu Thr Asn
 690 695 700

Lys Leu Pro Asp Leu Trp Arg Lys Ile Glu Ser Ile Asn Gln Gln Leu
 705 710 715 720

Leu Pro Leu Gly Asn Ile Ser Asp Asn Met Asp Arg Ile Arg Glu Leu
 725 730 735

Ile Gln Gln Ala Arg Asp Ala Ala Ser Lys Val Ala Val Pro Met Arg
 740 745 750

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770						775					780				
Ser	Arg	Glu	Asn	Gly	Gly	Thr	Glu	Asn	Met	Phe	Val	Met	Tyr	Leu	Gly
785					790				795					800	
Asn	Lys	Asp	Ala	Ser	Arg	Asp	Tyr	Ile	Gly	Met	Ala	Val	Val	Asp	Gly
								805		810				815	
Gln	Leu	Thr	Cys	Val	Tyr	Asn	Leu	Gly	Asp	Arg	Glu	Ala	Glu	Leu	Gln
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Val	Asp	Gln	Ile	Leu	Thr	Lys	Ser	Glu	Thr	Lys	Glu	Ala	Val	Met	Asp
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Arg	Val	Lys	Phe	Gln	Arg	Ile	Tyr	Gln	Phe	Ala	Arg	Leu	Asn	Tyr	Thr
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Lys	Gly	Ala	Thr	Ser	Ser	Lys	Pro	Glu	Thr	Pro	Gly	Val	Tyr	Asp	Met
								865		870				880	
Asp	Gly	Arg	Asn	Ser	Asn	Thr	Leu	Leu	Asn	Leu	Asp	Pro	Glu	Asn	Val
								885		890				895	
Val	Phe	Tyr	Val	Gly	Gly	Tyr	Pro	Pro	Asp	Phe	Lys	Leu	Pro	Ser	Arg
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Ala	Pro	Ile	Pro	Thr	Phe	Gly	Gln	Thr	Ile	Gln	Thr	Thr	Val	Asp	Arg
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Gly	Leu	Leu	Phe	Phe	Ala	Glu	Asn	Gly	Asp	Arg	Phe	Ile	Ser	Leu	Asn
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Ile	Glu	Asp	Gly	Lys	Leu	Met	Val	Arg	Tyr	Lys	Leu	Asn	Ser	Glu	Leu
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Ser	Ile	Gln	Ile	Lys	Ile	Gly	Lys	Leu	Gln	Lys	Arg	Met	Trp	Ile	Asn
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Ser Glu Asp Trp Lys Leu Val Arg Ser Ala Ser Phe Ser Arg Gly Gly
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Gln Leu Ser Phe Thr Asp Leu Gly Leu Pro Pro Thr Asp His Leu Gln
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Ala Ser Phe Gly Phe Gln Thr Phe Gln Pro Ser Gly Ile Leu Leu Asp
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His Gln Thr Trp Thr Arg Asn Leu Gln Val Thr Leu Glu Asp Gly Tyr
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Ile Glu Leu Ser Thr Ser Asp Ser Gly Gly Pro Ile Phe Lys Ser Pro
1185 1190 1195 1200

Gln Thr Tyr Met Asp Gly Leu Leu His Tyr Val Ser Val Ile Ser Asp
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Asn Ser Gly Leu Arg Leu Leu Ile Asp Asp Gln Leu Leu Arg Asn Ser
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Lys Arg Leu Lys His Ile Ser Ser Arg Gln Ser Leu Arg Leu Gly
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Gly Ser Asn Phe Glu Gly Cys Ile Ser Asn Val Phe Val Gln Arg Leu
1250 1255 1260

Ser Leu Ser Pro Glu Val Leu Asp Leu Thr Ser Asn Ser Leu Lys Arg
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Asp Val Ser Leu Gly Gly Cys Ser Leu Asn Lys Pro Pro Phe Leu Met
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Leu Leu Lys Gly Ser Thr Arg Phe Asn Lys Thr Lys Thr Phe Arg Ile
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Asn Gln Leu Leu Gln Asp Thr Pro Val Ala Ser Pro Arg Ser Val Lys
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Val Trp Gln Asp Ala Cys Ser Pro Leu Pro Lys Thr Gln Ala Asn His
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Gly Ala Leu Gln Phe Gly Asp Ile Pro Thr Ser His Leu Leu Phe Lys
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Leu Pro Gln Glu Leu Leu Lys Pro Arg Ser Gln Phe Ala Val Asp Met
1365 1370 1375

Gln Thr Thr Ser Ser Arg Gly Leu Val Phe His Thr Gly Thr Lys Asn
1380 1385 1390

Ser Phe Met Ala Leu Tyr Leu Ser Lys Gly Arg Leu Val Phe Ala Leu
1395 1400 1405

Gly Thr Asp Gly Lys Lys Leu Arg Ile Lys Ser Lys Glu Lys Cys Asn
1410 1415 1420

99274Cseq

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Ser	Gly	Lys	Pro	Lys	Ser	Leu	Pro	Thr	Asn	Ser	Phe	Val	Gly	Cys	Leu
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Lys	Asn	Phe	Gln	Leu	Asp	Ser	Lys	Pro	Leu	Tyr	Thr	Pro	Ser	Ser	Ser
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Phe	Ser	Glu	Glu	Gly	Gly	His	Val	Val	Leu	Ala	His	Ser	Val	Leu	Leu
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Gly	Pro	Glu	Phe	Lys	Leu	Val	Phe	Ser	Ile	Arg	Pro	Arg	Ser	Leu	Thr
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tcg att cag atc aaa att gga aaa ctc caa aag cgt atg tgg ata aat Ser Ile Gln Ile Lys Ile Gly Lys Leu Gln Lys Arg Met Trp Ile Asn	1045	1050	1055	3168
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aca tat tat ctg gga gga att cca att gca atc agg gaa aga ttt aac Thr Tyr Tyr Leu Gly Gly Ile Pro Ile Ala Ile Arg Glu Arg Phe Asn	1075	1080	1085	3264
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Leu Thr Gly Asp Cys Ile Asn Gln Glu Pro Lys Asp Ser Ser Pro Ala	
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 225 230 235 240
 Ile Ser Asn His Gly Ser Lys Ile Glu Gly Leu Glu Arg Glu Leu Thr
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 Asp Leu Asn Gln Glu Phe Glu Thr Leu Gln Glu Lys Ala Gln Val Asn
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 Ser Arg Lys Ala Gln Thr Leu Asn Asn Asn Val Asn Arg Ala Thr Gln
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 Ser Ala Lys Glu Leu Asp Val Lys Ile Lys Asn Val Ile Arg Asn Val
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 His Ile Leu Leu Lys Gln Ile Ser Gly Thr Asp Gly Glu Gly Asn Asn
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Gln Gln Thr Leu Asn Ile Val Thr Val Gln Lys Glu Val Ile Asp Thr
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ggg gtc tta ata cac gtc gga agt caa tct gga cag cgc tta agt gtg Gly Val Leu Ile His Val Gly Ser Gln Ser Gly Gln Arg Leu Ser Val 1585 1590 1595 1600	4858
tac atg gag gca gga aag gtc aca acc tct gtg agc agt gat gca gga Tyr Met Glu Ala Gly Lys Val Thr Thr Ser Val Ser Ser Asp Ala Gly 1605 1610 1615	4906
gga agt gtg aca tca att aca ccg aag cag tct ctg tgt gat gga cag Gly Ser Val Thr Ser Ile Thr Pro Lys Gln Ser Leu Cys Asp Gly Gln 1620 1625 1630	4954
tgg cac tcg gtg gca gtc tcc att aaa cag cgc atc ctg cat cta gaa Trp His Ser Val Ala Val Ser Ile Lys Gln Arg Ile Leu His Leu Glu 1635 1640 1645	5002
ctg gat aca gac agt agc tac aca gtc gca cca ctt tcc ttc tca cca Leu Asp Thr Asp Ser Ser Tyr Thr Val Ala Pro Leu Ser Phe Ser Pro 1650 1655 1660	5050
aac agc acc cga ggg tca ctg cac gtc gga ggt gtc cca gac aaa ttg Asn Ser Thr Arg Gly Ser Leu His Val Gly Gly Val Pro Asp Lys Leu 1665 1670 1675 1680	5098
aaa atg ctt aca ctc cct gtg tgg aac tca ttt ttt ggc tgt ctg aag Lys Met Leu Thr Leu Pro Val Trp Asn Ser Phe Phe Gly Cys Leu Lys 1685 1690 1695	5146
aat att caa gtc aac cat gtc cct gtc ccc atc aca gaa gcc aca gaa Asn Ile Gln Val Asn His Val Pro Val Pro Ile Thr Glu Ala Thr Glu 1700 1705 1710	5194
gtc caa ggt tct gtc agc ctg aat ggc tgc cct gac cac taaccctaca Val Gln Gly Ser Val Ser Leu Asn Gly Cys Pro Asp His 1715 1720 1725	5243
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Gln Arg Val Ala Phe Leu Gln His Pro Gly Gln Asn His Leu Gln Ala
35 40 45
Ser Tyr Met Glu Leu Arg Pro Ser Gln Gly Cys Arg Pro Gly Tyr Tyr
50 55 60
Arg Asp Ile Lys Ser Phe Pro Ala Gly Arg Ser Val Pro Cys Asn Cys

99274Cseq

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Asn	Gly	His	Ser	Asn	Arg	Cys	Gln	Asp	Gly	Ser	Gly	Val	Cys	Ile	Asn
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Cys	Gln	His	Asn	Thr	Ala	Gly	Glu	His	Cys	Glu	Arg	Cys	Lys	Arg	Gly
				100				105					110		
Tyr	Tyr	Gly	Ser	Ala	Ile	His	Gly	Ser	Cys	Arg	Val	Cys	Pro	Cys	Pro
				115				120				125			
His	Thr	Asn	Ser	Phe	Ala	Thr	Gly	Cys	Ala	Val	Asp	Gly	Gly	Ala	Val
				130				135			140				
Arg	Cys	Ala	Cys	Lys	Pro	Gly	Tyr	Thr	Gly	Ala	Gln	Cys	Glu	Arg	Cys
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Ala	Pro	Gly	Tyr	Phe	Gly	Asn	Pro	Gln	Lys	Phe	Gly	Gly	Ser	Cys	Gln
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Pro	Cys	Asn	Cys	Asn	Ser	Asn	Gly	Gln	Phe	Gly	Thr	Cys	Asp	Pro	Leu
				180				185				190			
Thr	Gly	Asp	Cys	Val	Ser	Gln	Glu	Pro	Lys	Asp	Gly	Ser	Pro	Ala	Glu
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Glu	Cys	Asp	Asp	Cys	Asp	Ser	Cys	Val	Met	Thr	Leu	Leu	Asn	Asp	Leu
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Val	Pro	Met	Gly	Glu	Glu	Leu	Ala	Leu	Val	Lys	Ser	Lys	Leu	Gln	Gly
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Leu	Ser	Val	Asn	Thr	Gly	Ser	Leu	Glu	Gln	Ile	Arg	His	Val	Glu	Met
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Gln	Ala	Lys	Asp	Leu	Arg	Asn	Gln	Leu	Leu	Gly	Phe	Arg	Ser	Ala	Ile
				260				265			270				
Ser	Ser	His	Gly	Ser	Gln	Met	Asp	Gly	Leu	Glu	Lys	Glu	Leu	Ser	His
				275				280			285				
Leu	Tyr	Gln	Glu	Phe	Glu	Thr	Leu	Gln	Glu	Lys	Ala	Gln	Val	Asn	Ser
				290				295			300				
Arg	Lys	Ala	Gln	Thr	Leu	Tyr	Asn	Asn	Ile	Asp	Thr	Thr	Ile	Gln	Asn
				305				310			315			320	
Ala	Lys	Glu	Leu	Asp	Met	Lys	Ile	Lys	Asn	Ile	Leu	Thr	Asn	Val	His
				325				330				335			
Ile	Leu	Leu	Lys	Gln	Ile	Ala	Arg	Pro	Gly	Gly	Glu	Met	Asp	Leu	
				340				345			350				
Pro	Val	Gly	Asp	Trp	Ser	Arg	Glu	Ser	Ala	Glu	Ala	Gln	Arg	Met	Leu
				355				360			365				
Arg	Glu	Leu	Arg	Gly	Arg	Asp	Phe	Lys	Lys	His	Leu	Gln	Glu	Ala	Glu
				370				375			380				
Ala	Gln	Lys	Met	Glu	Ala	Gln	Leu	Leu	Asn	Arg	Ile	Arg	Thr	Trp	
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Leu	Glu	Ser	His	Gln	Val	Glu	Asn	Asn	Gly	Leu	Leu	Lys	Asn	Ile	Arg

99274Cseq

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Asp Ser Leu Asn Asp Tyr Glu Ala Lys Leu Gln Asp Leu Arg Ser Val		
420	425	430
Leu Gln Glu Ala Ala Ala Gln Gly Lys Gln Ala Thr Gly Leu Asn His		
435	440	445
Glu Asn Glu Gly Val Leu Gly Ala Ile Gln Arg Gln Met Lys Glu Met		
450	455	460
Asp Ser Leu Lys Lys Tyr Leu Thr Glu His Leu Ala Thr Ala Asp Ala		
465	470	475
Ser Leu Leu Gln Thr Asn Ser Leu Leu Gln Arg Met Asp Thr Ser Gln		
485	490	495
Lys Glu Tyr Glu Ser Leu Ala Ala Leu Asn Gly Ala Arg Gln Glu		
500	505	510
Leu Asn Asp Gln Val Arg Glu Leu Ser Arg Ser Gly Gly Lys Ala Pro		
515	520	525
Leu Val Ala Glu Ala Glu Lys His Ala Gln Ser Leu Gln Glu Leu Ala		
530	535	540
Lys Gln Leu Glu Glu Ile Lys Arg Asn Thr Ser Gly Asp Glu Ser Val		
545	550	555
Arg Cys Val Val Asp Ala Ala Thr Ala Tyr Glu Ser Ile Leu Asn Ala		
565	570	575
Ile Arg Ala Ala Glu Asp Ala Ala Gly Lys Ala Asp Ser Ala Ser Glu		
580	585	590
Ser Ala Phe Gln Thr Val Ile Lys Glu Asp Leu Pro Arg Arg Ala Lys		
595	600	605
Thr Leu Ser Ser Asp Ser Glu Glu Leu Leu Asn Glu Ala Lys Met Thr		
610	615	620
Arg Lys Arg Leu Gln Gln Glu Ile Asn Pro Ala Leu Asn Ser Leu Gln		
625	630	635
Gln Thr Leu Lys Thr Val Ser Val Gln Lys Asp Leu Leu Asp Ala Asn		
645	650	655
Val Thr Ala Val Arg Asn Asp Leu Arg Gly Ile Gln Arg Gly Asp Ile		
660	665	670
Asp Ser Val Val Ser Gly Ala Lys Ser Met Val Arg Lys Ala Asn Gly		
675	680	685
Ile Thr Ser Glu Val Leu Asp Gly Leu Ser Pro Ile Gln Thr Asp Leu		
690	695	700
Gly Arg Ile Lys Asp Ser Tyr Gly Ser Thr Arg His Glu Asp Phe Asn		
705	710	715
Lys Ala Leu Ile Asp Ala Asn Asn Ser Val Lys Lys Leu Thr Lys Lys		
725	730	735
Leu Pro Asp Leu Phe Val Lys Ile Glu Ser Ile Asn Gln Gln Leu Leu		

99274Cseq

740	745	750	
Pro Leu Gly Asn Ile Ser Asp Asn Val Asp Arg Ile Arg Glu Leu Ile			
755	760	765	
Thr Gln Ala Arg Asp Ala Ala Asn Lys Val Ala Ile Pro Met Arg Phe			
770	775	780	
Asn Gly Lys Ser Gly Val Glu Val Arg Leu Pro Asn Asp Leu Glu Asp			
785	790	795	800
Leu Lys Gly Tyr Thr Ser Leu Ser Leu Phe Leu Gln Arg Pro Asp Leu			
805	810	815	
Arg Glu Asn Gly Gly Thr Glu Asp Met Phe Val Met Tyr Leu Gly Asn			
820	825	830	
Lys Asp Ala Ser Lys Asp Tyr Ile Gly Met Ala Val Val Asp Gly Gln			
835	840	845	
Leu Thr Cys Val Tyr Asn Leu Gly Asp Arg Glu Ala Glu Val Gln Ile			
850	855	860	
Asp Gln Val Leu Thr Glu Ser Glu Ser Gln Glu Ala Val Met Asp Arg			
865	870	875	880
Val Lys Phe Gln Arg Ile Tyr Gln Phe Ala Lys Leu Asn Tyr Thr Lys			
885	890	895	
Glu Ala Thr Ser Asn Lys Pro Lys Ala Pro Ala Val Tyr Asp Leu Glu			
900	905	910	
Gly Gly Ser Ser Asn Thr Leu Leu Asn Leu Asp Pro Glu Asp Ala Val			
915	920	925	
Phe Tyr Val Gly Gly Tyr Pro Pro Asp Phe Glu Leu Pro Ser Arg Leu			
930	935	940	
Arg Phe Pro Pro Tyr Lys Gly Cys Ile Glu Leu Asp Asp Leu Asn Glu			
945	950	955	960
Asn Val Leu Ser Leu Tyr Asn Phe Lys Thr Thr Phe Asn Leu Asn Thr			
965	970	975	
Thr Glu Val Glu Pro Cys Arg Arg Arg Lys Glu Glu Ser Asp Lys Asn			
980	985	990	
Tyr Phe Glu Gly Thr Gly Tyr Ala Arg Ile Pro Thr Gln Pro Asn Ala			
995	1000	1005	
Pro Phe Pro Asn Phe Ile Gln Thr Ile Gln Thr Thr Val Asp Arg Gly			
1010	1015	1020	
Leu Leu Phe Phe Ala Glu Asn Gln Asp Asn Phe Ile Ser Leu Asn Ile			
1025	1030	1035	1040
Glu Asp Gly Asn Leu Met Val Arg Tyr Lys Leu Asn Ser Glu Pro Pro			
1045	1050	1055	
Lys Glu Lys Gly Ile Arg Asp Thr Ile Asn Asp Gly Lys Asp His Ser			
1060	1065	1070	
Ile Leu Ile Thr Ile Gly Lys Leu Gln Lys Arg Met Trp Ile Asn Val			

99274Cseq

1075	1080	1085
Asn Glu Arg Ser Val Arg Ile Glu Gly Glu Ile Phe Asp Phe Ser Thr		
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Tyr Tyr Leu Gly Gly Ile Pro Ile Ala Ile Arg Glu Arg Phe Asn Ile		
1105	1110	1115
Ser Thr Pro Ala Phe Gln Gly Cys Met Lys Asn Leu Lys Lys Thr Ser		
1125	1130	1135
Gly Val Val Arg Leu Asn Asp Thr Val Gly Val Thr Lys Lys Cys Ser		
1140	1145	1150
Glu Asp Trp Lys Leu Val Arg Thr Ala Ser Phe Ser Arg Gly Gly Gln		
1155	1160	1165
Met Ser Phe Thr Asn Leu Asp Val Pro Ser Thr Asp Arg Phe Gln Leu		
1170	1175	1180
Ser Phe Gly Phe Gln Thr Phe Gln Pro Ser Gly Thr Leu Leu Asn His		
1185	1190	1195
Gln Thr Arg Thr Ser Ser Leu Leu Val Thr Leu Glu Asp Gly His Ile		
1205	1210	1215
Glu Leu Ser Thr Arg Asp Ser Asn Ile Pro Ile Phe Lys Ser Pro Gly		
1220	1225	1230
Thr Tyr Met Asp Gly Leu Leu His His Val Ser Val Ile Ser Asp Thr		
1235	1240	1245
Ser Gly Leu Arg Leu Leu Ile Asp Asp Gln Val Leu Arg Arg Asn Gln		
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Arg Leu Pro Ser Phe Ser Asn Ala Gln Gln Ser Leu Arg Leu Gly Gly		
1265	1270	1275
Gly His Phe Glu Gly Cys Ile Ser Asn Val Leu Val Gln Arg Phe Ser		
1285	1290	1295
Gln Ser Pro Glu Val Leu Asp Leu Ala Ser Lys Ser Thr Lys Lys Asp		
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Ala Ser Leu Gly Gly Cys Ser Leu Asn Lys Pro Pro Phe Leu Met Leu		
1315	1320	1325
Phe Lys Ser Pro Lys Arg Phe Asn Lys Gly Arg Ile Phe Asn Val Asn		
1330	1335	1340
Gln Leu Met Gln Asp Ala Pro Gln Ala Thr Arg Ser Thr Glu Ala Trp		
1345	1350	1355
Gln Asp Gly Arg Ser Cys Leu Pro Pro Leu Asn Thr Lys Ala Ser His		
1365	1370	1375
Arg Ala Leu Gln Phe Gly Asp Ser Pro Thr Ser His Leu Leu Leu Lys		
1380	1385	1390
Leu Pro Gln Glu Leu Leu Lys Pro Arg Ser Gln Phe Ser Leu Asp Ile		
1395	1400	1405
Gln Thr Thr Ser Pro Lys Gly Leu Val Phe Tyr Ala Gly Thr Lys Asp		

99274Cseq

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Ser Phe Leu Ala Leu Tyr Val Ala Asp Gly Arg Val Val Phe Ala Leu		
1425	1430	1435
Gly Ala Gly Gly Lys Lys Leu Arg Leu Arg Ser Lys Glu Arg Tyr His		
1445	1450	1455
Asp Gly Lys Trp His Thr Val Val Phe Gly Leu Asn Gly Gly Lys Ala		
1460	1465	1470
Arg Leu Val Val Asp Gly Leu Arg Ala Gln Glu Gly Ser Leu Pro Gly		
1475	1480	1485
Asn Ser Thr Ile Ser Pro Arg Glu Gln Val Tyr Leu Gly Leu Pro Leu		
1490	1495	1500
Ser Arg Lys Pro Lys Ser Leu Pro Gln His Ser Phe Val Gly Cys Leu		
1505	1510	1515
Arg Asp Phe Gln Leu Asn Ser Lys Pro Leu Asp Ser Pro Ser Ala Arg		
1525	1530	1535
Phe Gly Val Ser Pro Cys Leu Gly Gly Ser Leu Glu Lys Gly Ile Tyr		
1540	1545	1550
Phe Ser Gln Gly Gly His Val Ile Leu Ala Asn Ser Val Ser Leu		
1555	1560	1565
Gly Pro Glu Leu Lys Leu Thr Phe Ser Ile Arg Pro Arg Ser Leu Thr		
1570	1575	1580
Gly Val Leu Ile His Val Gly Ser Gln Ser Gly Gln Arg Leu Ser Val		
1585	1590	1595
Tyr Met Glu Ala Gly Lys Val Thr Thr Ser Val Ser Ser Asp Ala Gly		
1605	1610	1615
Gly Ser Val Thr Ser Ile Thr Pro Lys Gln Ser Leu Cys Asp Gly Gln		
1620	1625	1630
Trp His Ser Val Ala Val Ser Ile Lys Gln Arg Ile Leu His Leu Glu		
1635	1640	1645
Leu Asp Thr Asp Ser Ser Tyr Thr Val Ala Pro Leu Ser Phe Ser Pro		
1650	1655	1660
Asn Ser Thr Arg Gly Ser Leu His Val Gly Gly Val Pro Asp Lys Leu		
1665	1670	1675
Lys Met Leu Thr Leu Pro Val Trp Asn Ser Phe Phe Gly Cys Leu Lys		
1685	1690	1695
Asn Ile Gln Val Asn His Val Pro Val Pro Ile Thr Glu Ala Thr Glu		
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Val Gln Gly Ser Val Ser Leu Asn Gly Cys Pro Asp His		
1715	1720	1725

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99274Cseq

<213> Rattus norvegicus

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gca	agt	tat	atg	gag	ctt	aga	ccc	agc	cag	ggc	tgt	cgc	cca	gga	tac		96
Ala	Ser	Tyr	Met	Glu	Leu	Arg	Pro	Ser	Gln	Gly	Cys	Arg	Pro	Gly	Tyr		
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tat	cga	gac	atc	aaa	agc	ttc	cct	gcg	gga	agg	tct	gtt	ccc	tgc	aat		144
Tyr	Arg	Asp	Ile	Lys	Ser	Phe	Pro	Ala	Gly	Arg	Ser	Val	Pro	Cys	Asn		
				35			40					45					

tgc	aac	gga	cat	tca	aat	aga	tgc	caa	gac	ggc	tcg	gga	gtg	tgc	att		192
Cys	Asn	Gly	His	Ser	Asn	Arg	Cys	Gln	Asp	Gly	Ser	Gly	Val	Cys	Ile		
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aac	tgt	cag	cac	aac	aca	gct	ggg	gag	cac	tgt	gag	cgt	tgc	aag	agg		240
Asn	Cys	Gln	His	Asn	Thr	Ala	Gly	Glu	His	Cys	Glu	Arg	Cys	Lys	Arg		
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ggt	tac	tat	gga	agc	gcc	atc	cat	gga	tcc	tgc	agg	gtt	tgc	ccc	tgt		288
Gly	Tyr	Tyr	Gly	Ser	Ala	Ile	His	Gly	Ser	Cys	Arg	Val	Cys	Pro	Cys		
				85				90					95				

cct	cac	acc	aac	agc	ttt	gcc	act	ggc	tgt	gct	gtg	gat	gga	gga	gct		336
Pro	His	Thr	Asn	Ser	Phe	Ala	Thr	Gly	Cys	Ala	Val	Asp	Gly	Gly	Ala		
				100				105				110					

gtg	agg	tgt	gcc	tgc	aaa	ccc	gga	tac	aca	gga	gca	cag	tgt	gag	agg		384
Val	Arg	Cys	Ala	Cys	Lys	Pro	Gly	Tyr	Thr	Gly	Ala	Gln	Cys	Glu	Arg		
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tgt	gca	cca	gga	tat	ttt	ggg	aac	ccc	cag	aaa	ttt	gga	ggt	agc	tgc		432
Cys	Ala	Pro	Gly	Tyr	Phe	Gly	Asn	Pro	Gln	Lys	Phe	Gly	Gly	Ser	Cys		
				130			135				140						

caa	cca	tgc	aat	tgc	aac	agt	aat	ggc	cag	ttt	ggc	act	tgt	gat	ccc		480
Gln	Pro	Cys	Asn	Cys	Asn	Ser	Asn	Gly	Gln	Phe	Gly	Thr	Cys	Asp	Pro		
				145			150			155			160				

cta	act	gga	gac	tgt	gta	agc	caa	gaa	ccc	aaa	gat	ggc	agc	cct	gca		528
Leu	Thr	Gly	Asp	Cys	Val	Ser	Gln	Glu	Pro	Lys	Asp	Gly	Ser	Pro	Ala		
				165				170				175					

gaa	gaa	tgt	gat	gac	tgt	gac	agc	tgt	gtg	atg	act	ctc	cta	aat	gac		576
Glu	Glu	Cys	Asp	Asp	Cys	Asp	Ser	Cys	Val	Met	Thr	Leu	Leu	Asn	Asp		
				180				185				190					

ttg	gtc	ccc	atg	ggt	gag	gaa	ctc	gcc	ctg	gtg	aaa	tca	aaa	ctt	cag		624
Leu	Val	Pro	Met	Gly	Glu	Glu	Leu	Ala	Leu	Val	Lys	Ser	Lys	Leu	Gln		
				195			200				205						

ggg	ctg	agt	gtg	aac	act	ggt	tct	ctg	gaa	cag	atc	cgg	cat	gtg	gag		672
Gly	Leu	Ser	Val	Asn	Thr	Gly	Ser	Leu	Glu	Gln	Ile	Arg	His	Val	Glu		
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Met	Gln	Ala	Lys	Asp	Leu	Arg	Asn	Gln	Leu	Leu	Gly	Phe	Arg	Ser	Ala	
225		230				235									240	
atc	tcc	agt	cac	ggg	tcc	caa	atg	gac	ggc	ctg	gaa	aaa	gaa	ctc	agt	768
Ile	Ser	Ser	His	Gly	Ser	Gln	Met	Asp	Gly	Leu	Glu	Lys	Glu	Leu	Ser	
							245		250					255		
cat	ttg	tac	cag	gaa	ttc	gaa	act	ttg	caa	gaa	aag	gcg	cag	gtc	aat	816
His	Leu	Tyr	Gln	Glu	Phe	Glu	Thr	Leu	Gln	Glu	Lys	Ala	Gln	Val	Asn	
							260		265				270			
tcc	aga	aaa	gca	caa	aca	tta	tat	aac	aac	atc	gat	acg	aca	atc	caa	864
Ser	Arg	Lys	Ala	Gln	Thr	Leu	Tyr	Asn	Asn	Ile	Asp	Thr	Thr	Ile	Gln	
							275		280			285				
aac	gcc	aaa	gag	ttg	gac	atg	aag	att	aaa	aac	ata	ctt	acg	aat	gtg	912
Asn	Ala	Lys	Glu	Leu	Asp	Met	Lys	Ile	Lys	Asn	Ile	Leu	Thr	Asn	Val	
						290		295			300					
cac	att	ctc	ctg	aag	cag	atc	gct	cg	cca	ggt	gga	gaa	gga	atg	gac	960
His	Ile	Leu	Leu	Lys	Gln	Ile	Ala	Arg	Pro	Gly	Gly	Glu	Gly	Met	Asp	
						305		310		315				320		
ttg	ccg	gtg	ggc	gac	tgg	tcc	agg	gag	tcg	gcg	gaa	gct	cag	cgc	atg	1008
Leu	Pro	Val	Gly	Asp	Trp	Ser	Arg	Glu	Ser	Ala	Glu	Ala	Gln	Arg	Met	
						325			330				335			
ttg	cg	gag	ctg	cga	ggc	cga	gac	ttt	aaa	aag	cac	ctc	caa	gaa	gca	1056
Leu	Arg	Glu	Leu	Arg	Gly	Arg	Asp	Phe	Lys	Lys	His	Leu	Gln	Glu	Ala	
						340			345				350			
gag	gcc	cag	aaa	atg	gaa	gcc	cag	ctc	tta	ctg	aac	cga	atc	agg	acc	1104
Glu	Ala	Gln	Lys	Met	Glu	Ala	Gln	Leu	Leu	Leu	Asn	Arg	Ile	Arg	Thr	
						355			360			365				
tgg	ctg	gaa	tcc	cac	cag	gt	gag	aac	aat	gga	ctg	cta	aag	aat	att	1152
Trp	Leu	Glu	Ser	His	Gln	Val	Glu	Asn	Asn	Gly	Leu	Leu	Lys	Asn	Ile	
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cg	gat	tca	tta	aat	gat	tat	gaa	gcc	aaa	ctt	cag	gac	ctg	cgt	tcc	1200
Arg	Asp	Ser	Leu	Asn	Asp	Tyr	Glu	Ala	Lys	Leu	Gln	Asp	Leu	Arg	Ser	
						385		390		395				400		
tg	ctt	cag	gag	g	gc	g	ca	g	ca	g	ct	ac	gg	ct	aa	1248
Val	Leu	Gln	Glu	Ala	Ala	Ala	Gln	Gly	Lys	Gln	Ala	Thr	Gly	Leu	Asn	
						405			410			415				
cac	gaa	aat	gag	ggg	gtc	cta	gga	gcc	atc	cag	aga	caa	atg	aag	gaa	1296
His	Glu	Asn	Glu	Gly	Val	Leu	Gly	Ala	Ile	Gln	Arg	Gln	Met	Lys	Glu	
						420			425			430				
atg	gat	tcc	ctg	aag	aag	tac	ctc	acc	gag	cac	ctg	gcc	aca	gca	gac	1344
Met	Asp	Ser	Leu	Lys	Lys	Tyr	Leu	Thr	Glu	His	Leu	Ala	Thr	Ala	Asp	
						435		440			445					
gct	tcc	ctg	ctg	caa	acc	aac	agt	cta	ctg	cag	cg	atg	gac	acg	agc	1392
Ala	Ser	Leu	Leu	Gln	Thr	Asn	Ser	Leu	Leu	Gln	Arg	Met	Asp	Thr	Ser	
						450		455			460					
cag	aag	gag	tat	gaa	agc	tta	gct	gct	gct	tta	aac	gga	gca	aga	cag	1440
Gln	Lys	Glu	Tyr	Glu	Ser	Leu	Ala	Ala	Leu	Asn	Gly	Ala	Arg	Gln		
						465		470			475			480		

99274Cseq

gaa ctg aat gac caa gtg cg ^g gaa ctc tcc aga tcc gga ggc aaa gca Glu Leu Asn Asp Gln Val Arg Glu Leu Ser Arg Ser Gly Gly Lys Ala 485 490 495	1488
ccc ctg gtg gct gag gcc gag aag cac gct cag tct tta cag gag ctg Pro Leu Val Ala Glu Ala Glu Lys His Ala Gln Ser Leu Gln Glu Leu 500 505 510	1536
gca aag cag ctg gaa gag ata aag aga aac acc agt ggg gat gag tcg Ala Lys Gln Leu Glu Glu Ile Lys Arg Asn Thr Ser Gly Asp Glu Ser 515 520 525	1584
gtg cgc tgt gtc gtg gac gct gcc act gcc tat gag agc atc ctc aac Val Arg Cys Val Val Asp Ala Ala Thr Ala Tyr Glu Ser Ile Leu Asn 530 535 540	1632
gcc atc cga gca gca gag gat gca gcc ggc aag gcc gac agt gcc tca Ala Ile Arg Ala Ala Glu Asp Ala Ala Gly Lys Ala Asp Ser Ala Ser 545 550 555 560	1680
gag tcc gcc ttc cag aca gtg ata aag gaa gat ctt ccg aga aga gcc Glu Ser Ala Phe Gln Thr Val Ile Lys Glu Asp Leu Pro Arg Arg Ala 565 570 575	1728
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aag ttg cct gat ctt ttt gtc aag att gaa agc atc aatcaa cag ttg Lys Leu Pro Asp Leu Phe Val Lys Ile Glu Ser Ile Asn Gln Gln Leu 705 710 715 720	2160
ctg ccc ctg gga aac atc tct gac aat gta gac cga atc cga gag ctc Leu Pro Leu Gly Asn Ile Ser Asp Asn Val Asp Arg Ile Arg Glu Leu	2208

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gac ttg aag gga tac acg tct ctg tct ttg ttc ctc caa aga cca gac Asp Leu Lys Gly Tyr Thr Ser Leu Ser Leu Phe Leu Gln Arg Pro Asp	770	775	780	2352	
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cag ctg acg tgt gtc tac aac ctg ggg gac cga gaa gct gaa gtt cag Gln Leu Thr Cys Val Tyr Asn Leu Gly Asp Arg Glu Ala Glu Val Gln	820	825	830	2496	
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cgg gtg aag ttc cag aga ata tat caa ttt gcc aag ctt aat tac acc Arg Val Lys Phe Gln Arg Ile Tyr Gln Phe Ala Lys Leu Asn Tyr Thr	850	855	860	2592	
aaa gaa gcc acg tcc aat aaa ccc aaa gct ccc gcg gtc tac gac ctg Lys Glu Ala Thr Ser Asn Lys Pro Lys Ala Pro Ala Val Tyr Asp Leu	865	870	875	880	2640
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Cys Asn Gly His Ser Asn Arg Cys Gln Asp Gly Ser Gly Val Cys Ile			
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Asn Cys Gln His Asn Thr Ala Gly Glu His Cys Glu Arg Cys Lys Arg			
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Gly Tyr Tyr Gly Ser Ala Ile His Gly Ser Cys Arg Val Cys Pro Cys			
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Pro His Thr Asn Ser Phe Ala Thr Gly Cys Ala Val Asp Gly Gly Ala			
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Val Arg Cys Ala Cys Lys Pro Gly Tyr Thr Gly Ala Gln Cys Glu Arg			
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Cys Ala Pro Gly Tyr Phe Gly Asn Pro Gln Lys Phe Gly Gly Ser Cys			
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Gln Pro Cys Asn Cys Asn Ser Asn Gly Gln Phe Gly Thr Cys Asp Pro			
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Gly Leu Ser Val Asn Thr Gly Ser Leu Glu Gln Ile Arg His Val Glu			
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Lys Thr Leu Ser Ser Asp Ser Glu Glu Leu Leu Asn Glu Ala Lys Met			
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Gln Gln Thr Leu Lys Thr Val Ser Val Gln Lys Asp Leu Leu Asp Ala			
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Cys Glu Arg Cys Gln Leu His Tyr Phe Arg Asn Arg Arg Pro Gly Ala
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Ser Ile Gln Glu Thr Cys Ile Ser Cys Glu Cys Asp Pro Asp Gly Ala
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Val Pro Gly Ala Pro Cys Asp Pro Val Thr Gly Gln Cys Val Cys Lys
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Glu His Val Gln Gly Glu Arg Cys Asp Leu Cys Lys Pro Gly Phe Thr
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Gly Leu Thr Tyr Ala Asn Pro Gln Gly Cys His Arg Cys Asp Cys Asn
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Ile Leu Gly Ser Arg Arg Asp Met Pro Cys Asp Glu Glu Ser Gly Arg
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Cys Leu Cys Leu Pro Asn Val Val Gly Pro Lys Cys Asp Gln Cys Ala
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Ala	Ile	Arg	Gln	Cys	Pro	Asp	Arg	Thr	Tyr	Gly	Asp	Val	Ala	Thr	Gly
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Cys	Arg	Ala	Cys	Asp	Cys	Asp	Phe	Arg	Gly	Thr	Glu	Gly	Pro	Gly	Cys
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Ala	Gln	Arg	Leu	Glu	Thr	Gln	Val	Ser	Ala	Ser	Arg	Ser	Gln	Met	Glu
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Glu	Asp	Val	Arg	Arg	Thr	Arg	Leu	Leu	Ile	Gln	Gln	Val	Arg	Asp	Phe
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Lys	Leu	Val	Thr	Ser	Met	Thr	Lys	Gln	Leu	Gly	Asp	Phe	Trp	Thr	Arg
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Ala Cys Ser Arg Gly Ala Cys Tyr Pro Pro Val Gly Asp Leu Leu Val		
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Gly Arg Thr Arg Phe Leu Arg Ala Ser Ser Thr Cys Gly Leu Thr Lys		
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Pro Glu Thr Tyr Cys Thr Gln Tyr Gly Glu Trp Gln Met Lys Cys Cys		
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Lys Cys Asp Ser Arg Gln Pro His Asn Tyr Tyr Ser His Arg Val Glu		
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Asn Val Ala Ser Ser Gly Pro Met Arg Trp Trp Gln Ser Gln Asn		
80 85 90		
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Asp Val Asn Pro Val Ser Leu Gln Leu Asp Leu Asp Arg Arg Phe Gln		
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Leu Gln Glu Val Met Met Glu Phe Gln Gly Pro Met Pro Ala Gly Met		
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Leu Ile Glu Arg Ser Ser Asp Phe Gly Lys Thr Trp Arg Val Tyr Gln		
130 135 140		
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Tyr Leu Ala Ala Asp Cys Thr Ser Thr Phe Pro Arg Val Arg Gln Gly		
145 150 155		

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175 180 185 190	
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225 230 235	
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335 340 345 350	
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355 360 365	
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Leu Arg Ser Ala Asp Leu Thr Gly Leu Glu Lys Arg Val Glu Gln Ile			
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cgg	gtc	cgc	cag	ggt	cg	cct	cag	agc	tgg	cag	gat	gtt	cgg	tgc	cag
Arg	Val	Arg	Gln	Gly	Arg	Pro	Gln	Ser	Trp	Gln	Asp	Val	Arg	Cys	Gln
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Ser	Leu	Pro	Gln	Arg	Pro	Asn	Ala	Arg	Leu	Asn	Gly	Gly	Lys	Val	Gln
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Arg	Leu	Ala	Pro	Val	Pro	Gln	Arg	Gly	Tyr	His	Pro	Pro	Ser	Ala	Tyr
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Tyr	Ala	Val	Ser	Gln	Leu	Arg	Leu	Gln	Gly	Ser	Cys	Phe	Cys	His	Gly
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Pro	Asp	Gly	Ala	Val	Pro	Gly	Ala	Pro	Cys	Asp	Pro	Val	Thr	Gly	Gln	
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Ser Leu Pro Gln Arg Pro Asn Ala Arg Leu Asn Gly Gly Lys Val Gln
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Glu Gly Lys Asn Cys Glu Arg Cys Gln Leu His Tyr Phe Arg Asn Arg
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Arg Pro Gly Ala Ser Ile Gln Glu Thr Cys Ile Ser Cys Glu Cys Asp
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Pro Asp Gly Ala Val Pro Gly Ala Pro Cys Asp Pro Val Thr Gly Gln
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Cys Ser Ala Ala Ala Ile Arg Gln Cys Pro Asp Arg Thr Tyr Gly Asp
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Gly Pro Gly Cys Asp Lys Ala Ser Gly Arg Cys Leu Cys Arg Pro Gly
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Leu Val Gly Arg Thr Arg Phe Leu Arg Ala Ser Ser Thr Cys Gly Leu	
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Thr Lys Pro Glu Thr Tyr Cys Thr Gln Tyr Gly Glu Trp Gln Met Lys	
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Cys Cys Lys Cys Asp Ser Arg Gln Pro His Asn Tyr Tyr Ser His Arg	
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Val Glu Asn Val Ala Ser Ser Gly Pro Met Arg Trp Trp Gln Ser	
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Phe Gln Leu Gln Glu Val Met Met Glu Phe Gln Gly Pro Met Pro Ala	
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Gly Met Leu Ile Glu Arg Ser Ser Asp Phe Gly Lys Thr Trp Arg Val	
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Tyr Gln Tyr Leu Ala Ala Asp Cys Thr Ser Thr Phe Pro Arg Val Arg	
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Pro	Val	Pro	Gln	Arg	Gly	Tyr	His	Pro	Pro	Ser	Ala	Tyr	Tyr	Ala	Val	
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Arg	Cys	Ala	Pro	Lys	Pro	Gly	Ala	Ser	Ala	Gly	Pro	Ser	Thr	Ala	Val	
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Gln	Val	His	Asp	Val	Cys	Val	Cys	Gln	His	Asn	Thr	Ala	Gly	Pro	Asn	
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Cys	Glu	Arg	Cys	Ala	Pro	Phe	Tyr	Asn	Asn	Arg	Pro	Trp	Arg	Pro	Ala	
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Ser	Glu	Thr	Cys	His	Phe	Asp	Pro	Ala	Val	Phe	Ala	Ala	Ser	Gln	Gly	
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Ala	Tyr	Gly	Gly	Val	Cys	Asp	Asn	Cys	Arg	Asp	His	Thr	Glu	Gly	Lys	
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Asn	Cys	Glu	Arg	Cys	Gln	Leu	His	Tyr	Phe	Arg	Asn	Arg	Arg	Pro	Gly	
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gct	tcc	att	cag	gag	acc	tgc	atc	tcc	tgc	gag	tgt	gat	ccg	gat	ggg	1104
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Ala	Val	Pro	Gly	Ala	Pro	Cys	Asp	Pro	Val	Thr	Gly	Gln	Cys	Val	Cys	
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Gly Met Leu Ile Glu Arg Ser Ser Asp Phe Gly Lys Thr Trp Arg Val
115 120 125
Tyr Gln Tyr Leu Ala Ala Asp Cys Thr Ser Thr Phe Pro Arg Val Arg
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Gln Arg Pro Asn Ala Arg Leu Asn Gly Gly Lys Val Gln Leu Asn Leu
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Met Asp Leu Val Ser Gly Ile Pro Ala Thr Gln Ser Gln Lys Ile Gln
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Ser Gln Leu Arg Leu Gln Gly Ser Cys Phe Cys His Gly His Ala Asp
225 230 235 240
Arg Cys Ala Pro Lys Pro Gly Ala Ser Ala Gly Pro Ser Thr Ala Val
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Cys Glu Arg Cys Ala Pro Phe Tyr Asn Asn Arg Pro Trp Arg Pro Ala

99274Cseq

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agc ccg gac ggt gct gtg gtg caa ggg ctt gtg gaa aaa ttg gag aaa Ser Pro Asp Gly Ala Val Val Gln Gly Leu Val Glu Lys Leu Glu Lys	2503

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810	815	820	
acc aag tcc ctg gcc cag cag ttg aca agg gag gcc act caa gcg gaa Thr Lys Ser Leu Ala Gln Gln Leu Thr Arg Glu Ala Thr Gln Ala Glu 825	830	835	2551
att gaa gca gat agg tct tat cag cac agt ctc cgc ctc ctg gat tca Ile Glu Ala Asp Arg Ser Tyr Gln His Ser Leu Arg Leu Leu Asp Ser 840	845	850	2599
gtg tct ccg ctt cag gga gtc agt gat cag tcc ttt cag gtg gaa gaa Val Ser Pro Leu Gln Gly Val Ser Asp Gln Ser Phe Gln Val Glu Glu 855	860	865	2647
gca aag agg atc aaa caa aaa gcg gat tca ctc tca agc ctg gta acc Ala Lys Arg Ile Lys Gln Lys Ala Asp Ser Leu Ser Ser Leu Val Thr 875	880	885	2695
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aaa gaa gaa gca cag cag ctc tta cag aat gga aaa agt ggg aga gag Lys Glu Glu Ala Gln Gln Leu Leu Gln Asn Gly Lys Ser Gly Arg Glu 905	910	915	2791
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caa gaa gca ctg agt atg ggc aat gcc act ttt tat gaa gtt gag agc Gln Glu Ala Leu Ser Met Gly Asn Ala Thr Phe Tyr Glu Val Glu Ser 935	940	945	2887
atc ctt aaa aac ctc aga gag ttt gac ctg cag gtg gac aac aga aaa Ile Leu Lys Asn Leu Arg Glu Phe Asp Leu Gln Val Asp Asn Arg Lys 955	960	965	2935
gca gaa gct gaa gaa gcc atg aag aga ctc tcc tac atc agc cag aag Ala Glu Ala Glu Ala Met Lys Arg Leu Ser Tyr Ile Ser Gln Lys 970	975	980	2983
gtt tca gat gcc agt gac aag acc cag caa gca gaa aga gcc ctg ggg Val Ser Asp Ala Ser Asp Lys Thr Gln Gln Ala Glu Arg Ala Leu Gly 985	990	995	3031
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ctg gaa atc tcc agt gag att gaa cag gag att ggg agt ctg aac ttg Leu Glu Ile Ser Ser Glu Ile Glu Gln Glu Ile Gly Ser Leu Asn Leu 1015	1020	1025	3127
gaa gcc aat gtg aca gca gat gga gcc ttg gcc atg gaa aag gga ctg Glu Ala Asn Val Thr Ala Asp Gly Ala Leu Ala Met Glu Lys Gly Leu 1035	1040	1045	3175
gcc tct ctg aag agt gag atg agg gaa gtg gaa gga gag ctg gaa agg Ala Ser Leu Lys Ser Glu Met Arg Glu Val Glu Gly Glu Leu Glu Arg 1050	1055	1060	3223
aag gag ctg gag ttt gac acg aat atg gat gca gta cag atg gtg att			3271

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Lys Glu Leu Glu Phe Asp Thr Asn Met Asp Ala Val Gln Met Val Ile			
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aca gaa gcc cag aag gtt gat acc aga gcc aag aac gct ggg gtt aca			3319
Thr Glu Ala Gln Lys Val Asp Thr Arg Ala Lys Asn Ala Gly Val Thr			
1080	1085	1090	
atc caa gac aca ctc aac aca tta gac ggc ctc ctg cat ctg atg gac			3367
Ile Gln Asp Thr Leu Asn Thr Leu Asp Gly Leu Leu His Leu Met Asp			
1095	1100	1105	1110
cag cct ctc agt gta gat gaa gag ggg ctg gtc tta ctg gag cag aag			3415
Gln Pro Leu Ser Val Asp Glu Glu Gly Leu Val Leu Leu Glu Gln Lys			
1115	1120	1125	
ctt tcc cga gcc aag acc cag atc aac agc caa ctg cggtccc atg atg			3463
Leu Ser Arg Ala Lys Thr Gln Ile Asn Ser Gln Leu Arg Pro Met Met			
1130	1135	1140	
tca gag ctg gaa gag agg gca cgt cag cag agg ggc cac ctc cat ttg			3511
Ser Glu Leu Glu Glu Arg Ala Arg Gln Gln Arg Gly His Leu His Leu			
1145	1150	1155	
ctg gag aca agc ata gat ggg att ctg gct gat gtg aag aac ttg gag			3559
Leu Glu Thr Ser Ile Asp Gly Ile Leu Ala Asp Val Lys Asn Leu Glu			
1160	1165	1170	
aac att agg gac aac ctg ccc cca ggc tgc tac aat acc cag gct ctt			3607
Asn Ile Arg Asp Asn Leu Pro Pro Gly Cys Tyr Asn Thr Gln Ala Leu			
1175	1180	1185	1190
gag caa cag tgaagctgcc ataaaatattt ctcaactgag gttcttggga			3656
Glu Gln Gln			
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atgt			3720

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35 40 45
Asn Gly Phe Arg Cys Leu Asn Cys Asn Asp Asn Thr Asp Gly Ile His
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Cys Glu Lys Cys Lys Asn Gly Phe Tyr Arg His Arg Glu Arg Asp Arg
65 70 75 80
Cys Leu Pro Cys Asn Cys Asn Ser Lys Gly Ser Leu Ser Ala Arg Cys
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99274Cseq

Asp	Asn	Ser	Gly	Arg	Cys	Ser	Cys	Lys	Pro	Gly	Val	Thr	Gly	Ala	Arg
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Val	Thr	Gly	Glu	Arg	Cys	Asp	Gly	Cys	Arg	Ser	Gly	Tyr	Tyr	Asn	Leu
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Asp	Gly	Gly	Asn	Pro	Glu	Gly	Cys	Thr	Gln	Cys	Phe	Cys	Tyr	Gly	His
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Ser	Ala	Ser	Cys	Arg	Ser	Ser	Ala	Glu	Tyr	Ser	Val	His	Lys	Ile	Thr
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Ser	Thr	Phe	His	Gln	Asp	Val	Asp	Gly	Trp	Lys	Ala	Val	Gln	Arg	Asn
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Gly	Ser	Pro	Ala	Lys	Leu	Gln	Trp	Ser	Gln	Arg	His	Gln	Asp	Val	Phe
						225				230				235	
Ser	Ser	Ala	Gln	Arg	Leu	Asp	Pro	Val	Tyr	Phe	Val	Ala	Pro	Ala	Lys
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Phe	Leu	Gly	Asn	Gln	Gln	Val	Ser	Tyr	Gly	Gln	Ser	Leu	Ser	Phe	Asp
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Tyr	Arg	Val	Asp	Arg	Gly	Gly	Arg	His	Pro	Ser	Ala	His	Asp	Val	Ile
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Leu	Glu	Gly	Ala	Gly	Leu	Arg	Ile	Thr	Ala	Pro	Leu	Met	Pro	Leu	Gly
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Lys	Thr	Leu	Pro	Cys	Gly	Leu	Thr	Lys	Thr	Tyr	Thr	Phe	Arg	Leu	Asn
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Glu	His	Pro	Ser	Asn	Asn	Trp	Ser	Pro	Gln	Leu	Ser	Tyr	Phe	Glu	Tyr
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Arg	Arg	Leu	Leu	Arg	Asn	Leu	Thr	Ala	Leu	Arg	Ile	Arg	Ala	Thr	Tyr
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Gly	Glu	Tyr	Ser	Thr	Gly	Tyr	Ile	Asp	Asn	Val	Thr	Leu	Ile	Ser	Ala
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Arg	Pro	Val	Ser	Gly	Ala	Pro	Ala	Pro	Trp	Val	Glu	Gln	Cys	Ile	Cys
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Pro	Val	Gly	Tyr	Lys	Gly	Gln	Phe	Cys	Gln	Asp	Cys	Ala	Ser	Gly	Tyr
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Lys	Arg	Asp	Ser	Ala	Arg	Leu	Gly	Pro	Phe	Gly	Thr	Cys	Ile	Pro	Cys
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Asn	Cys	Gln	Gly	Gly	Ala	Cys	Asp	Pro	Asp	Thr	Gly	Asp	Cys	Tyr	
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Ser Gly Asp Glu Asn Pro Asp Ile Glu Cys Ala Asp Cys Pro Ile Gly
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Phe Tyr Asn Asp Pro His Asp Pro Arg Ser Cys Lys Pro Cys Pro Cys
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His Asn Gly Phe Ser Cys Ser Val Met Pro Glu Thr Glu Glu Val Val
 465 470 475 480

Cys Asn Asn Cys Pro Pro Gly Val Thr Gly Ala Arg Cys Glu Leu Cys
 485 490 495

Ala Asp Gly Tyr Phe Gly Asp Pro Phe Gly Glu His Gly Pro Val Arg
 500 505 510

Pro Cys Gln Pro Cys Gln Cys Asn Asn Asn Val Asp Pro Ser Ala Ser
 515 520 525

Gly Asn Cys Asp Arg Leu Thr Gly Arg Cys Leu Lys Cys Ile His Asn
 530 535 540

Thr Ala Gly Ile Tyr Cys Asp Gln Cys Lys Ala Gly Tyr Phe Gly Asp
 545 550 555 560

Pro Leu Ala Pro Asn Pro Ala Asp Lys Cys Arg Ala Cys Asn Cys Asn
 565 570 575

Pro Met Gly Ser Glu Pro Val Gly Cys Arg Ser Asp Gly Thr Cys Val
 580 585 590

Cys Lys Pro Gly Phe Gly Gly Pro Asn Cys Glu His Gly Ala Phe Ser
 595 600 605

Cys Pro Ala Cys Tyr Asn Gln Val Lys Ile Gln Met Asp Gln Phe Met
 610 615 620

Gln Gln Leu Gln Arg Met Glu Ala Leu Ile Ser Lys Ala Gln Gly Gly
 625 630 635 640

Asp Gly Val Val Pro Asp Thr Glu Leu Glu Gly Arg Met Gln Gln Ala
 645 650 655

Glu Gln Ala Leu Gln Asp Ile Leu Arg Asp Ala Gln Ile Ser Glu Gly
 660 665 670

Ala Ser Arg Ser Leu Gly Leu Gln Leu Ala Lys Val Arg Ser Gln Glu
 675 680 685

Asn Ser Tyr Gln Ser Arg Leu Asp Asp Leu Lys Met Thr Val Glu Arg
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Val Arg Ala Leu Gly Ser Gln Tyr Gln Asn Arg Val Arg Asp Thr His
 705 710 715 720

Arg Leu Ile Thr Gln Met Gln Leu Ser Leu Ala Glu Ser Glu Ala Ser
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Leu Gly Asn Thr Asn Ile Pro Ala Ser Asp His Tyr Val Gly Pro Asn
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Gly Phe Lys Ser Leu Ala Gln Glu Ala Thr Arg Leu Ala Glu Ser His
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99274Cseq

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785						790				795					800
Val	Gly	Ser	Gly	Ser	Gly	Ser	Pro	Asp	Gly	Ala	Val	Val	Gln	Gly	Leu
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Glu	Ala	Thr	Gln	Ala	Glu	Ile	Glu	Ala	Asp	Arg	Ser	Tyr	Gln	His	Ser
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Leu	Arg	Leu	Leu	Asp	Ser	Val	Ser	Pro	Leu	Gln	Gly	Val	Ser	Asp	Gln
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Leu	Ser	Ser	Leu	Val	Thr	Arg	His	Met	Asp	Glu	Phe	Lys	Arg	Thr	Gln
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Lys	Asn	Leu	Gly	Asn	Trp	Lys	Glu	Glu	Ala	Gln	Gln	Leu	Leu	Gln	Asn
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Phe	Tyr	Glu	Val	Glu	Ser	Ile	Leu	Lys	Asn	Leu	Arg	Glu	Phe	Asp	Leu
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Gln	Val	Asp	Asn	Arg	Lys	Ala	Glu	Ala	Glu	Glu	Ala	Met	Lys	Arg	Leu
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Ser	Tyr	Ile	Ser	Gln	Lys	Val	Ser	Asp	Ala	Ser	Asp	Lys	Thr	Gln	Gln
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Ile	Gly	Ser	Leu	Asn	Leu	Glu	Ala	Asn	Val	Thr	Ala	Asp	Gly	Ala	Leu
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Ala	Met	Glu	Lys	Gly	Leu	Ala	Ser	Leu	Lys	Ser	Glu	Met	Arg	Glu	Val
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Glu	Gly	Glu	Leu	Glu	Arg	Lys	Glu	Leu	Glu	Phe	Asp.	Thr	Asn	Met	Asp
	1060					1065					1070				
Ala	Val	Gln	Met	Val	Ile	Thr	Glu	Ala	Gln	Lys	Val	Asp	Thr	Arg	Ala
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Lys	Asn	Ala	Gly	Val	Thr	Ile	Gln	Asp	Thr	Leu	Asn	Thr	Leu	Asp	Gly
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Val Leu Leu Glu Gln Lys Leu Ser Arg Ala Lys Thr Gln Ile Asn Ser
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Gln Leu Arg Pro Met Met Ser Glu Leu Glu Glu Arg Ala Arg Gln Gln
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Arg Gly His Leu His Leu Leu Glu Thr Ser Ile Asp Gly Ile Leu Ala
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ctc aac tgc aat gac aac act gat ggc att cac tgc gag aag tgc aag	144
Leu Asn Cys Asn Asp Asn Thr Asp Gly Ile His Cys Glu Lys Cys Lys	
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Asn Gly Phe Tyr Arg His Arg Glu Arg Asp Arg Cys Leu Pro Cys Asn	
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Cys Asn Ser Lys Gly Ser Leu Ser Ala Arg Cys Asp Asn Ser Gly Arg	
65 70 75 80	

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Cys Ser Cys Lys Pro Gly Val Thr Gly Ala Arg Cys Asp Arg Cys Leu	
85 90 95	

cca ggc ttc cac atg ctc acg gat gcg ggg tgc acc caa gac cag aga	336
Pro Gly Phe His Met Leu Thr Asp Ala Gly Cys Thr Gln Asp Gln Arg	
100 105 110	

ctg cta gac tcc aag tgt gac tgt gac cca gct ggc atc gca ggg ccc	384
Leu Leu Asp Ser Lys Cys Asp Cys Asp Pro Ala Gly Ile Ala Gly Pro	
115 120 125	

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Cys Asp Ala Gly Arg Cys Val Cys Lys Pro Ala Val Thr Gly Glu Arg	

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Pro	Gly	Val	Thr	Gly	Ala	Arg	Cys	Glu	Leu	Cys	Ala	Asp	Gly	Tyr	Phe
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Gly	Asp	Pro	Phe	Gly	Glu	His	Gly	Pro	Val	Arg	Pro	Cys	Gln	Pro	Cys
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Gln	Cys	Asn	Asn	Asn	Val	Asp	Pro	Ser	Ala	Ser	Gly	Asn	Cys	Asp	Arg
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Pro	Val	Gly	Cys	Arg	Ser	Asp	Gly	Thr	Cys	Val	Cys	Lys	Pro	Gly	Phe
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Gly	Gly	Pro	Asn	Cys	Glu	His	Gly	Ala	Phe	Ser	Cys	Pro	Ala	Cys	Tyr
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Asn	Gln	Val	Lys	Ile	Gln	Met	Asp	Gln	Phe	Met	Gln	Gln	Leu	Gln	Arg
595						600					605				
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Pro Gly Phe His Met Leu Thr Asp Ala Gly Cys Thr Gln Asp Gln Arg 100 105 110		
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His Asp Pro Arg Ser Cys Lys Pro Cys Pro Cys His Asn Gly Phe Ser
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Lys Ala Glu Ala Glu Glu Ala Met Lys Arg Leu Ser Tyr Ile Ser Gln
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